REMARKS

Reconsideration of the application is requested.

Claims 1-19 are now in the application. Claims 1-19 are under examination. Claims 1, 6-8, 11-13 and 16-17 have been amended. Claims 18-19 have been added.

Under the heading "Claim Rejections - 35 USC § 102" on pages 2 - 3 of the above-identified Office Action, claims 1-2, 8-9 and 13 have been rejected as being fully anticipated by Japanese Patent Publication No. 2001-77723 to Motoyasu et al. which is equivalent to Austrian patent application No. AU 200056498 (hereinafter Motoyasu) under 35 U.S.C. § 102.

First, the claims have been amended to change the phrases "multi-subscriber detection" to "joint detection" and "multi-subscriber system/equalization/equalizer" to "joint detection system/equalization/equalizer". As noted on page 1, lines 18-23 of the specification of the instant application the phrase "joint detection" is simply another phrase for "multi-subscriber detection". However, "joint detection" is the more common word in the art and is now entered into the claims as the applicants believe the Examiner may not be giving patentable weight to the lesser known phrase of "multi-subscriber detection".

Before outlining the differences between the invention of the instant application and the prior art, the concepts of joint detection (JD) and RAKE receivers, which are well known in the prior art, are briefly discussed.

Joint detection (JD), also known as multi-subscriber detection, is known in the art as a technique in which multiple user signals are simultaneously detected. Joint detection relies on the idea that the interference caused by other user signals is deterministic, i.e. not noise. Thus, the detection of other user signals can be used to eliminate the interference caused by these other user signals to the user signal to be reconstructed at the receiver. While the aim of single user signal detection is to suppress or filter out other user signals, the joint detection approach specifically detects the other user signals and "subtracts" the detected interferers from the single user signal to be recovered at the receiver.

A RAKE receiver is a known receiver type for performing radio signal detection. The concept underlying a RAKE receiver is to use a number of discrete demodulators (RAKE fingers), wherein each RAKE finger is timely aligned or synchronized to one of a number of propagation paths over which the signal to be demodulated is propagated. In a conventional RAKE

receiver, it is <u>not possible</u> to provide for a fixed time offset between the RAKE fingers, because the path delay of each propagation path is a-priory unknown and continuously changes, i.e. has to be measured and then traced.

Amended claims 1, 8 and 13 of the instant application relate to a method or a device for joint detection. The method and devices of claims 1, 8 and 13 use a RAKE receiver structure having <u>a fixed time offset</u> between the RAKE fingers. In claim 1, the joint detection system matrix is mapped onto the RAKE receiver structure by allocating each of the RAKE fingers to a defined section of the joint detection system matrix. During operation, at least one of the RAKE fingers is deactivated for reducing the power consumption of the RAKE receiver structure (also see claims 8 and 13).

In other words, according to the invention of the instant application, <u>a RAKE receiver structure is used for joint detection</u>. The RAKE receiver structure, according to the invention of the instant application, is operated in a different manner than are conventional RAKE receiver structures, namely <u>with a fixed time offset between the RAKE fingers</u>. Therefore, in contrast to conventional RAKE receivers, the RAKE fingers in the joint detection RAKE structure according to the invention are <u>not</u> associated with specific propagation paths through the air interface. This is

described on page 16, line 23, to page 17, line 8, of the specification of the instant application.

In contrast, Motoyasu does not relate to joint detection. Further, the RAKE receiver disclosed in Motoyasu is a conventional RAKE receiver, in which the RAKE fingers 130 are synchronized to signal propagation channels. This is done by the timing circuit 150 depicted in Fig. 8 and explained on page 1, lines 23 to 25. Thus, the RAKE receiver disclosed in Motoyasu fails to <u>have a fixed time offset between the RAKE fingers</u>. As Motoyasu neither discloses a method for joint detection nor proposes to map a joint detection system matrix onto a RAKE receiver structure using RAKE fingers with <u>fixed time offsets</u>, the subject matter of amended claims 1, 8 nor 13 are neither disclosed nor rendered obvious by Motoyasu.

In item 6 on pages 4-5 of the above-identified Office Action, claims 3-5, 10 and 15 have been rejected as being obvious over Motoyasu in view of U.S. Patent No. 7,031,373 to Iyer (hereinafter Iyer) under 35 U.S.C. § 103.

Iyer discloses a RAKE receiver that is also operated according to the conventional approach, i.e. by assigning RAKE fingers to propagation paths of the signal to be demodulated. This is described in column 4, lines 13 to 26. Iyer fails to disclose the teaching to map a joint detection system matrix onto a

RAKE receiver structure by allocating each of the RAKE fingers to a defined section of the joint detection system matrix and to operate the RAKE fingers with a fixed time offset between each other.

Amended claims 1, 8 and 13 are believed to be allowable. As claims 3-5, 10 and 15 depend from one of these claims, they are also believed to be allowable.

In item 7 on pages 5-7 of the above-identified Office Action, claims 6-7, 11-12, 14 and 16-17 have been rejected as being obvious over Motoyasu in view of U.S. Patent No. 6,831,944 to Misra et al. (hereinafter Misra) under 35 U.S.C. § 103.

Misra relates to a joint detection approach. In Misra, a system matrix A is constructed, see Fig. 4, step 4, in conjunction with equation (2) in column 4. The system matrix A is expanded, decomposed and then solved by using the Cholesky approach. However, Misra fails to teach the use of a RAKE receiver structure and to allocate the RAKE fingers of such RAKE receiver structure to sections of the joint detection system matrix A. As a consequence, Misra also fails to disclose how to operate such a RAKE receiver structure in order to perform joint detection (namely with fixed time offsets between the RAKE fingers).

Amended claims 1, 8 and 13 are believed to be allowable. As claims 6-7, 11-12, 14 and 16-17 depend from one of these claims, they are also believed to be allowable.

New independent claim 18 relates to a method for joint detection using a RAKE receiver structure having a fixed time offset between the RAKE fingers, in which a joint detection system matrix is mapped onto the RAKE receiver structure by allocating each of the RAKE fingers to a defined section of the joint detection system matrix. As explained above, all of the prior art references disclose a RAKE receiver structure having a conventional configuration (i.e. the RAKE fingers are allocated to propagation paths of the radio signal to be demodulated at the receiver) or a joint detection method which, however, does not utilize the RAKE receiver structure in which the RAKE fingers are operated with a fixed time offset. Therefore, the method of new claim 18 also distinguishes in a novel and inventive manner over all the prior art references. The patentability of new independent device claim 19 is based on an analogous argument. Support for claims 18 and 19 come from original claims 1 and 8.

Please find enclosed a credit card authorization is the amount of $400.00 for the entry of newly entered independent claims 18 and 19.

In view of the foregoing, reconsideration and allowance of claims 1-19 are solicited.

If an extension of time is required, petition for extension is herewith made. Any extension fee associated therewith should be charged to the Deposit Account of Lerner Greenberg Stemer LLP, No. 12-1099.

Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stemer LLP, No. 12-1099.

Respectfully submitted,

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October 31, 2006

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